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STATE OF MONTANA

BULLETIN

OF THE

Department of Public Health

Vol. 6 July 15, 1913 No. 4

MONTANA STATE BOARD OF HEALTH

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State Bacteriologist,

ALLAN TUFFORD,
Consulting Architect.

M. L. MORRIS,
Consulting Sanitary Engineer.

HELENA, MONTANA.

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

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This Bulletin will be mailed monthly to any person in Montana upon request mailed to the Secretary of the State Board of Health at Helena.

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At a special meeting of the State Board of Health on Monday, July 14th, 1913, trachoma was placed in the list of Communicable Diseases, and the following regulations were passed with a view to control this disease.

Reg. 1.—No child suffering from Trachoma shall be allowed to attend any public school in the State of Montana.

Reg. 2.—Teachers having reasons to believe that any of the children under their care are suffering from trachoma shall notify the County or Local Health Officer and the parents of said children.

These regulations were passed in order to handle a situation occurring in an Indian Reservation where some half breed children, suffering from trachoma, had been attending public schools. Other than in the reservations, there appear to be practically no cases of trachoma in the State of Montana.

The attention of the Doctors throughout the State is called to an article by Surgeon L. D. Fricks, U. S. Public Health Service, on "Rocky Mountain Spotted Fever: The Necessity for Determining Existing Areas of Infection," in this issue of the Bulletin.

Dr. Fricks is conducting experiments and is in charge of the eradication work in the Victor District of the Bitter Root Valley. He has given the spotted fever question a great deal of study and his article is well worth reading.

The Doctor's suggestion, that every physician in the State report briefly to this Department, for publication in the Bulletin, the history of any suspicious case or cases which he may attend, coming from a locality not known to have had the disease, is, I believe, a good one. Space will be reserved for the report of such cases in our August Bulletin.

ROCKY MOUNTAIN SPOTTED FEVER: THE NECESSITY FOR DETERMINING EXISTING AREAS OF INFECTION.

(By Surgeon L. D. Fricks, U. S. Public Health Service.)

The origin of Rocky Mountain spotted fever, like that of the other infectious diseases, is of course unknown, while its history up to very recent times is even more obscure than that of the majority of them.

It was with considerable suprise and more or less incredulity that the medical profession at large was forced to admit, hardly more than ten years ago, the existence of an entirely distinct and, in this sense, new infectious disease, occurring in the Snake River and Bitter Root valleys of Idaho and Montana. To this disease was finally given the name Rocky Mountain spotted fever.

It was at first confused with other infectious diseases which resemble it more or less closely in their clinical aspect, particularly measles, typhoid fever, cerebro-spinal meningitis, scarlet fever and typhus fever. But by careful research Ricketts and others were enabled to confirm the conviction of those local physicians who insisted that this disease was something new and different.

In the early study of the disease considerable discussion arose as to how long it had existed, particularly in the Bitter Root Valley; where the Indians and early settlers had known the disease, or had suffered from it, and there still remains room for argument—provided one considers it worth while. If it were possible to determine whether the infection of the Bitter Root Valley did occur within the knowledge of living men and how it occurred it would be of some interest and possibly of some value in preventing the spread of the disease into uninfected territories, but aside from that it is merely an historical event worthy of speculation perhaps, but of no practical importance to the profession.

The question of vital importance to every practitioner from the Dakotas to Washington and from the Canadian border to Arizona and New Mexico, is: Does Rocky Mountain spotted fever exist in his own district? What really was that case which you saw up the canyon last May? You called it typhoid at the time, but there were too many spots, particularly on his wrists and forehead, and he did not get well just as a typhoid case should; or typhus, but was he living in very close contact with another case of the same disease? Perhaps no diagnosis was made. But did you think to ask the patient whether he had been bitten by a wood tick within ten days of his being taken sick, or did you search him carefully for an attached tick or the mark it had left in order to clear up the diagnosis and ease your own mind?

In my opinion, this is the most pressing phase of the spotted fever problem now before us, and it is up to the practitioners of the northwest, particularly those whose ministrations lead them farthest into the mountains and out of the way places, to clear the way for its solution by determining the presence or absence of spotted fever in their communities and reporting the same to their respective health officers.

The Public Health Service and the State health officials are anxious to help in establishing diagnoses and thus determining the areas of infection. But the distances are so great and the means of communication in the parts we are particularly interested in are so limited, the brunt of the pioneer work must fall on the shoulders of the local physicians, and they must realize the great responsibility that rests upon them of correct diagnosis and careful report.

We know that Rocky Mountain spotted fever is transmitted to man through the bite of a tick—**Dermancentor andersoni**—and that this tick is found more or less abundantly over an area of 600,000 square miles, including the states of the Rocky Mountain group and the eastern parts of Washington and Oregon. Cases of spotted fever have been reported from all of these states at different times.

We know that only a very small percentage of the ticks in a spotted fever locality are infective, and judging from the history of the many thousand harmless bites occurring each season, that by far the greater part of this 600,000 square miles is entirely free from infective ticks.

We believe, however, that each authentic case of Rocky Mountain spotted fever represents at least some tick infection in that locality and that this infection will perpetuate itself so long as the ticks remain fairly abundant and can find animals susceptible to Rocky Mountain spotted fever on which to feed. No peculiar animal host of the spotted fever virus has yet been discovered and none is required for the continuation of a local tick infection, provided the ticks can feed together on susceptible animals.

Rickett's experiments showed that an infected female tick transmitted the infection to not more than 50 per cent of her progeny, and this, in the natural course of tick events, would mean the gradual elimination of the tick infection were it not replenished in some way, either by a natural host acting as a reservoir or by susceptible animals empressed as relay stations.

The latter appears to be the method by which this is brought about.

An infected tick attaches itself to one of the susceptible animals on which are several uninfected ticks, some possibly having fasted for two years. The infected tick transmits the disease to the host within a few hours (1 hour and 45 minutes at the minimum), and probably every tick will be infected before it has finished dining and dropped off to complete the next stage of its life cycle.

The susceptible animals so far known are the ground squirrel, wood chuck, rock squirrel, chipmunk, and possibly the wood rat and weasel.

While it is possible to estimate directly the percentage of tick infection in a given locality by animal experimentation, as McClintic did for certain sections of the Bitter Root Valley, it is tedious, expensive and hopelessly impossible over an area 600,000 square miles in extent.

Measures for the eradication of ticks from infested localities have been carried on in the Bitter Root Valley for three years and their value has been demonstrated. The health officials are in a position to advise any community as to the best method to be adopted in eradicating its ticks. But the first step in this campaign against Rocky Mountain spotted fever must be the securing of exact data in regard to the number and extent of the infected localities, and this must come from the local physicians.

Two types of Rocky Mountain spotted fever have been generally recognized—the Bitter Root Valley type, with a mortality of from 76 to 80 per cent, and the Idaho type, with a mortality of less than 4 per cent. The physician must not make the mistake of basing his diagnosis on the life or death of his patient. In fact, just as in a campaign against yellow fever, plague or smallpox, to the health officer the mild cases are the more important, so in our campaign against Rocky Mountain spotted fever the physician must be constantly on watch, during the proper season, for those mild cases in which the diagnosis is the most difficult.

The diagnosis of Rocky Mountain spotted fever in a locality known to be infected, where the patient is under observation from the time of the initial chill, should be easy for any careful physician; but in an unknown locality where the patient is seen only once or twice under most unfavorable conditions, as so often happens out here, it is another proposition. Every circumstance attending the history and course of the disease should then be carefully weighed, and it is believed that in a case of reasonable doubt giving a history of tick bite within ten days it should be classed as suspicious and so reported, together with a complete history, to the State Health Officer.

It is not desirable at this time to discuss the differential diagnosis between Rocky Mountain spotted fever and the other infectious diseases more or less closely resembling it, but perhaps a word should be said about typhus fever because of its extreme resemblance. I am confident that cases of these two diseases, both of the mild and virulent type, might be selected which would show themselves the exact counterpart of each other clinically. Anderson and Goldberger showed that they were distinct by animal experimentation. Animals inoculated with typhus were not immune to Rocky Mountain spotted fever and vice versa. Anderson and Goldberger also exploded the old idea that virulent cases of typhus could originate spontaneously by proving Brill's disease to be nothing but a mild form of typhus. Rocky Mountain spotted fever is an outdoor infection transmitted by the bite of a tick, while typhus is a house, bed, or garment infection transmitted by the bite of a body louse.

There is certainly very little typhus fever in the Northwest. The State Health Officer of Idaho reported one case last spring, but it was imported from the tropics.

As the very beginning of this general campaign to be inaugurated against Rocky Mountain spotted fever, it would be of extreme interest if every physician in the State would report briefly to the State Health Officer, for publication in the Bulletin, the history of any suspicious case or cases which he may have attended coming from a locality not known to have the disease.

DEPARTMENT OF VITAL STATISTICS.

The total number of deaths during the month of June was 342. Of this number 69 deaths were due to violence from the following causes:

Suicide	13
Drowning	19
Railroad accidents	8
Homicide	6
Accidents, horse	6
Mine accidents	4
Accidents, gun	3
Street car accidents	1
Poisoning	1
Automobile accident	1
Electrocution, accidental	1
Other accidents	6
Total	69

This shows that about twenty per cent of our deaths during the month of June were due to violence. Eliminating these violent deaths, our death rate for the month of June would be .728 per one thousand population.

Referring to the Report of Communicable Diseases, no reliance can be placed upon the figures given on tuberculosis. The number of cases of tuberculosis, whooping cough, cerebro-spinal meningitis and anterior poliomyelitis is not a true index of the cases existing in Montana. It has only been a few months since the law was passed making these diseases reportable, and the physicians appear to be very slow in sending in reports of these diseases.

Our figures would indicate that tuberculosis is increasing at a rapid rate, while it is merely the reporting of cases that would make it appear so.

Communicable Diseases Reported to the State Board of Health for the Month of June, 1913.

Smallpox—Cascade (exclusive of Great Falls), 6; Great Falls, 2; Carbon, 2; Custer, 1; Dawson, 1; Fergus, 6; Flathead (exclusive of Kalispell), 6; Kalispell, 1; Hill, 8; Lewis and Clark (exclusive of Helena), 1; Helena, 1; Missoula City, 1; Musselshell, 2; Powell, 1; Sheridan, 9; Butte, 6; Teton, 3; Yellowstone (exclusive of Billings), 2; Billings, 2. Total, 61. Total last month, 48.

Diphtheria—Custer, 1; Lewis and Clark (exclusive of Helena), 3; Missoula City, 4; Rosebud, 1. Total, 9. Total last month, 4

Scarlet Fever—Blaine, 3; Cascade (exclusive of Great Falls), 6; Great Falls, 5; Carbon, 1; Dawson, 3; Anaconda, 1; Fergus, 7; Flathead (exclusive of Kalispell), 3; Lewis and Clark (exclusive of Helena), 5; Helena, 5; Meagher, 7; Madison, 1; Missoula City, 1; Musselshell, 2; Sheridan, 1; Butte, 15; Valley, 1. Total, 67. Total last month, 155.

Typhoid Fever—Blaine, 2; Great Falls, 1; Chouteau, 2; Custer, 2; Dawson, 3; Flathead (exclusive of Kalispell), 1; Park, 2; Missoula City, 1; Yellowstone (exclusive of Billings), 2; Billings, 1. Total, 17. Total last month, 21.

Measles—Blaine, 24; Great Falls, 2; Chouteau, 1; Carbon, 13; Anaconda, 14; Fergus, 20; Gallatin (exclusive of Bozeman), 6; Bozeman, 1; Hill, 6; Helena, 3; Livingston, 1; Madison, 3; Missoula City, 1; Sheridan, 8; Butte, 8; Teton, 4; Yellowstone (exclusive of Billings), 5; Billings, 11. Total, 131. Total last month, 400.

Tuberculosis—Dawson, 2; Tuberculosis Sanatorium, 33; Fergus, 1; Bozeman, 1; Missoula (exclusive of Missoula City), 2; Missoula City, 1; Sheridan, 1; Sweet Grass, 1; Teton, 1; Billings, 1. Total, 44. Total last month, 6.

Cerebro-Spinal Meningitis—Broadwater, 1; Chouteau, 1; Fergus, 1; Billings, 2. Total, 5. Total last month, 2.

Anterior Poliomyelitis—Carbon, 1. Total, 1. Total last month, 0.

BIRTHS (EXCLSIVE OF STILLBIRTHS) REPORTED TO THE STATE BOARD OF HEALTH FOR THE MONTH OF JUNE, 1913, AND COMPARATIVE BIRTH AND DEATH RECORD IN THE STATE.

	Males.	Females.	Totals.	Deaths.	Excess of Births.	Excess of Deaths.
Beaverhead	4	4	8	3	5	..
Broadwater	1	3	4	1	3	..
Carbon	6	4	10	5	5	..
Cascade (Excl. of)	13	12	25	8	17	..
Great Falls	20	18	38	27	11	..
Chouteau	2	4	6	6	..	..
Custer	14	8	22	13	9	..
Dawson	14	10	24	12	12	..
Deer Lodge (Excl. of)	..	..	..	8	..	8
Anaconda	11	6	17	6	11	..
Fergus	14	12	26	15	11	..
Flathead (Excl. of)	16	8	24	13	11	..
Kalispell	7	9	16	5	11	..
Gallatin (Excl. of)	10	6	16	8	8	..
Bozeman	4	5	9	4	5	..
Granite	..	3	3	4	..	1
Jefferson	2	1	3	2	1	..
Lewis and Clark (Excl. of)	1	3	4	..	4	..
Helena	11	8	19	10	9	..
Lincoln	5	2	7	3	4	..
Madison	6	2	8	5	3	..
Meagher	4	9	13	9	4	..
Missoula (Excl. of)	5	5	10	4	6	..
Missoula City	10	13	23	15	8	..
Musselshell	2	2	4	2	2	..
Park (Excl. of)	4	4	8	2	6	..
Livingston	4	8	12	4	8	..
Powell	5	3	8	1	7	..
Ravalli	4	10	14	4	10	..
Rosebud	2	7	9	2	7	..
Sanders	2	1	3	3	..	..
Silver Bow (Excl. of)	17	8	25	25	..	..
Butte	41	41	82	65	17	..
Sweet Grass	2	5	7	2	5	..
Teton	7	9	16	3	13	..
Valley	8	4	12	3	9	..
Yellowstone (Excl. of)	13	7	20	3	17	..
Billings	7	8	15	12	3	..
Big Horn	1	1	2	..	2	..
Blaine	6	9	15	7	8	..
Hill	11	7	18	11	7	..
Sheridan	2	2	4	5	..	1
Stillwater	3	2	5	2	3	..
TOTALS	321	293	614	342	282	10

DEATHS (EXCLUSIVE OF STILLBIRTHS*) REPORTED TO THE STATE BOARD OF HEALTH FOR THE MONTH OF JUNE, 1913, ARRANGED ACCORDING TO COUNTIES AND PRINCIPAL CITIES.

	Spotted Fever	Small Pox	Tuberculosis	Diphtheria	Scarlet Fever	Measles	Typhoid Fever	Meningitis	Whooping Cough	Pneumonia	Nephritis	Organic Heart Disease	Malignant Tumors	Acute Intestinal Diseases	Violence	Suicide	Alcoholism	All Other Causes	Totals
Beaverhead	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	3
Broadwater	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	...	1
Carbon	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	5
Cascade (Excl. of)	..	..	..	..	..	..	..	..	..	1	..	..	1	1	2	..	..	3	8
Great Falls	..	..	2	..	5	..	..	1	..	2	2	1	2	..	5	..	..	7	27
Chouteau	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	3	6
Custer	..	..	..	1	..	..	..	..	..	..	1	1	..	..	3	2	..	5	13
Dawson	..	..	..	..	1	..	..	..	..	..	1	2	..	1	2	..	..	5	12
Deer Lodge (Excl. of)	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	6	8
Anaconda	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	..	3	6
Fergus	..	..	2	..	..	..	..	1	..	..	..	1	..	..	1	1	1	8	15
Flathead (Excl. of)	..	..	1	..	1	..	1	..	1	..	1	3	1	..	3	..	..	1	13
Kalispell	..	..	1	..	..	..	..	..	..	..	..	1	2	..	..	..	..	1	5
Gallatin (Excl. of)	..	..	1	..	..	..	..	..	..	1	..	1	1	..	1	..	..	3	8
Bozeman	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	...	4
Granite	1	..	..	..	1	..	..	..	..	1	..	..	..	..	1	..	..	...	4
Jefferson	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	2
Lewis and Clark (Excl. of)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...
Helena	..	..	..	..	..	..	..	..	..	1	3	1	..	..	1	1	..	3	10
Lincoln	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	...	3
Madison	..	..	..	..	..	..	..	..	..	1	..	..	1	..	3	..	..	...	5
Meagher	..	..	..	..	..	..	..	..	..	..	..	1	2	1	4	..	..	1	9
Missoula (Excl. of)	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	..	..	1	4
Missoula City	..	..	2	..	..	..	..	..	..	..	1	1	1	..	4	1	..	5	15
Musselshell	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	2
Park (Excl. of)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	...	2
Livingston	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	..	..	1	4
Powell	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	1
Ravalli	1	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..	...	4
Rosebud	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2
Sanders	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	...	3
Silver Bow (Excl. of)	..	..	7	..	..	..	..	1	1	1	4	1	..	3	3	1	..	3	25
Butte	..	..	8	..	2	..	..	2	3	6	3	11	2	2	5	3	..	18	65
Sweet Grass	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	...	2
Teton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	3
Valley	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	3
Yellowstone (Excl. of)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	3
Billings	..	..	1	..	..	..	..	..	..	..	3	1	1	..	1	2	..	3	12
Big Horn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...
Blaine	..	..	..	..	1	..	..	..	..	1	..	2	..	1	1	..	..	1	7
Hill	..	..	1	..	..	..	..	..	..	..	..	2	..	..	3	..	..	5	11
Sheridan	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	1	..	1	5
Stillwater	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	2
TOTALS	3	..	31	1	11	..	1	7	7	22	22	39	16	10	56	13	2	101	342

Estimated population	375,000
Monthly death rate per 1,000 population	.912
Annual death rate per 1,000 population	10.94

*Still births, 21.

BACTERIOLOGICAL EXAMINATIONS MADE DURING THE MONTH OF JUNE BY EMIL STARZ, BACTERIOLOGIST.

June 2, 1913. Blood for Widal reaction for Dr. McCabe, Helena, Mont. Found: Positive.

June 3, 1913. Sputum for Bac. Tub. and Pneumococci for Dr. McCabe, Helena, Mont. Found: Pneumococci.

Blood for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Positive.

June 5, 1913. Pus for Gonococci for Dr. L. Fligman, Helena, Mont. Found: Negative.

June 6, 1913. Cerebro-spinal fluid for Dr. Mott Arnold, Billings, Mont. Found: Diplococci introcellularis meningitis.

June 7, 1913. Pus for Gonococci for Dr. W. C. Riddell, Helena, Mont. Found: Positive.

June 10, 1913. Blood for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Positive.

June 11, 1913. Throat swabbings for Dr. McCabe, Helena, Mont. Found: Diphtheria Bac.

Pus for Gonococci for Dr. Cooney, Helena, Mont. Found: Positive.

June 12, 1913. Sputum for Bac. Tub. for Dr. McCabe, Helena, Mont. Found: Negative.

June 13, 1913. Exudate from wound for Dr. McCabe, Helena, Mont. Found: Staphylococci aureus.

June 14, 1913. Pus for Gonococci for Dr. Trinwith, Helena, Mont. Found: Negative.

Pus for Gonococci for Dr. W. C. Riddell, Helena, Mont. Found: Positive.

Blood for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Positive.

Cerebro-spinal fluid for Dr. J. F. Murphy, Fort Benton, Found: Diplococci intracellularis meningititis.

June 15, 1913. Diphtheria swabbings for Dr. Smith, Townsend, Mont. Found: Streptococci.

June 16, 1913. Blood for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Positive.

June 17, 1913. Blood for Widal reaction for Dr. Geo. Barbour, Helena, Mont. Found: Negative.

Diphtheria culture for Dr. R. Horsky, Helena, Mont. Found: Streptococci.

June 18, 1913. Cerobro-spinal fluid for Bac. Tub. and Meningococci for Dr. Mott Arnold, Billings, Mont. Found: Negative.

June 18, 1913. Blood for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Positive.

June 19, 1913. Pus for Gonococci for Dr. M. Dean, Helena, Mont. Found: Positive.

Pus for Gonococci for Dr. W. C. Riddell, Helena, Mont. Found: Positive.

June 20, 1913. Blood for Widal reaction for Dr. W. C. Riddell, Helena, Mont. Found: Negative.

Blood for Widal reaction for Dr. R. H. Beach, Glendive, Mont. Found: Negative.

Blood for Widal reaction for Dr. McCabe, Helena, Mont. Found: Positive.

June 21, 1913. Blood for Widal reaction for Dr. R. Horsky, Helena, Mont. Found; Negative.

Blood for Widal reaction for Dr. McCabe, Helena, Mont. Found: Positive.

Sputum for Bac. Tub., for Dr. M. Dean, Helena, Mont. Found: Negative.

June 23, 1913. Pus for Gonococci for Dr. Danskin, Glendive, Mont. Found: Positive.

Culture for Bac. Diphtheria for Dr. Johnston, Helena, Mont. Found: Negative.

Six blood samples for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Four negative and two positive.

Pus for Gonococci for Dr. S. Cooney, Helena, Mont. Found: Positive.

June 24, 1913. Culture for Diphtheria for Dr. Trinwith, Helena, Mont. Found: Negative.

Smear from throat for Bac. Diphtheria for Dr. McCabe, Helena, Mont. Found: Positive.

Sputum for Bac. Tub. for Dr. R. H. Ryburn, Bannack, Mont. Found: Streptococci, only.

June 25, 1913. Blood for Widal reaction for Dr. E. M. Porter, Fort Benton, Mont. Found: Negative.

Blood for Widal reaction for Dr. A. Husser, Hingham, Mont. Found: Negative.

Throat swabbings for Diphtheria Bac. for Dr. Peek, Helena, Mont. Found: Positive.

June 26, 1913. Two blood samples for Widal reaction for Dr. R. H. Beach, Glendive, Mont. Found: One positive and one negative.

June 27, 1913. Sputum for Tub. Bac. for Dr. L. Fligman, Helena, Mont. Found: Negative.

June 28, 1913. Culture for suspected Diphtheria for Dr. McCabe, Helena, Mont. Found: Streptococci.

June 29, 1913. Sputum for Bac. Tub: for Dr. L. M. Line, Columbus, Mont. Found: Negative.

Swabbings from throat for Bac. Diphtheria for Dr. W. C. Riddell, Helena, Mont. Found: Negative.

Pus for Gonococci for Dr. S. Cooney, Helena, Mont. Found: Positive.

June 30, 1913. Blood for Widal reaction for Dr. W. C. Riddell, Helena, Mont. Found: Negative.

Pus for Gonococci for Dr. A. L. Ward, Boulder, Montana. Found: Gonococci.

Culture for Diphtheria Bac. for Dr. Johnston, Helena, Mont. Found: Streptococci.

Respectfully submitted,
EMIL STARZ,
Bacteriologist.

Helena, Montana, July 2, 1913.

DIVISION OF FOODS AND DRUGS.

Dr. W. F. Cogswell, Secretary State Board of Health,
Food and Drug Commissioner.
F. J. O'Donnell, Inspector.

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LABORATORY REPORT.

Samples Reported During the Month of June. [illegible]

SUMMARY.

Classification.	Number Legal....	Number Illegal....	Total.....
Milk	28	21	49
Cream	6	1	7
Water	..	..	10
Unofficial	..	..	37
Miscellaneous	6	4	10
TOTALS	40	26	113

One hundred and thirteen samples were reported from the Laboratory to the Secretary of the Board of Health during the month of June, 40 legal, 26 illegal, 37 unofficial, and 10 were water samples.

Of this number 49 were official samples of milk, 28 were of standard quality or above while 21 were below standard. Of these 21, 15 were below standard in fat; 4 below standard in fat and solids not fat; 1 below standard in solids not fat, and one contained formaldehyde.

There were seven official samples of cream, one being below standard in fat.

There were ten miscellaneous products reported, three vanilla extracts, one imitation lithia water, three of canned peas, one of canned beans, one of canned mushrooms and one of canned spinach. Two of the vanilla extracts contained less alcohol than stated on the label. No lithium was detected in the imitation lithia water. The canned goods, except for the French peas, complied with the standard both as to general condition and to net weight wherever the same was stated on the label. The French peas were colored with sulphate of copper the presence of which was stated on the label. The rulings covering this use of copper sulphate are cited later in this report.

Ten samples of water were reported. Two were from the water supply of Little Chicago, one of Livingston city water, three relative to a spring near Great Falls, one from the reservoir of Hunter's Hot Springs Hotel, two from the water supply of Billings and one from a well near Big Timber.

Of the thirty-seven unofficial samples, one was a milk from Miles City. It was reported to be abnormal in its keeping qualities. However, no abnormality in the milk sent to the laboratory was discovered.

Five of the unofficial samples were bleaching powders and stock solutions of bleaching powder used in the hypochlorite water treating plant at Billings.

The other unofficial samples were samples of milk and cream sent to the Laboratory and analyzed, the analysis of which could not be used for official purposes.

A detailed report of the official samples follows:

MILK AND CREAM—STANDARD OR ABOVE.

MILK.

1956	6-13-13	H. D. Riegel	Chinook	14.55%	8.90%	5.65%
1957	6-13-13	Annex Cafe	Chinook	12.99	8,99	4.00
1958	6-13-13	Geo. Salisbury	Chinook	12.92	8.77	4.15
1959	6-13-13	Mrs. John Lynch.	Chinook	11.92	8.52	3.40
1960	6-13-13	Chas. F. Easbey.	Chinook	.....	.....	7.10
1961	6-13-13	Pat Maney	Chinook	12.75	9.05	3.70
1962	6-13-13	William Ryan	Missoula	12.14	8.64	3.50
1964	6-13-13	Edward Price	Chinook	12.45	8.65	3.80
1966	6-13-13	John Riley	Havre	12.74	8.84	3.90
1967	6-13-13	John Lynch	Havre	12.46	8.96	3.50
1988	6-20-13	H. P. Mollenberg	Deer Lodge	13.19	9.19	4.00
1989	6-20-13	E. Wolf & Sons	Deer Lodge	13.46	8.71	4.75
2027	6-27-13	Myers & Albers	Missoula	12.14	8.64	3.50
2028	6-27-13	Richlie Bros	Missoula	12.50	8.70	3.80
2033	6-27-13	Dennis Lee	Missoula	12.62	8.72	3.90
2036	6-27-13	L. M. Wittrup	Missoula	13.18	8.98	4.20
2038	6-27-13	D. A. Calhoun	Missoula	14.20	8.80	5.40
2041	6-27-13	Vienna Cafe	Missoula	13.06	8.76	4.30
2046	6-27-13	H. Minard	Missoula	12.74	8.84	3.90
2050	6-27-13	Mrs. G. Waters	Victor	13.09	8.69	4.40
2052	6-28-13	James St. John	Victor	13.24	9.24	4.00
2056	6-28-13	Jeffrey's Dairy	Hamilton	12.35	8.65	3.70
2058	6-28-13	F. H. Perry	Philipsburg	13.34	9.14	4.20
2059	6-28-13	H. A. Nicoleysen.	Philipsburg	13.24	8.84	4.40
2060	6-28-13	Mrs. J. Dissett	Philipsburg	13.05	8.85	4.20
2061	6-28-13	Lewis Mazza	Philipsburg	12.66	9.16	3.50
2062	6-28-13	H. E. Holden	Philipsburg	14.20	8.70	5.50
2063	6-28-13	Lee Bing Poy	Philipsburg	12.60	8.80	3.80

CREAM.

Lab. No.	Date.	Obtained From.	Town.	Total Solids.	Solids Not Fat.	Fat.
2029	6-27-13	C. E. Quast.....	Missoula	.....	.....	22.3%
2035	6-27-13	L. M. Wittrup...	Missoula	.....	.....	38.0
2048	6-27-13	H. Minard	Missoula	.....	.....	20.3
2045	6-27-13	Oott Quast.......	Missoula	.....	.....	24.0
2039	6-27-13	D. A. Calhoun...	Missoula	.....	.....	28.5
2031	6-27-13	Richlie Bros......	Missoula	.....	.....	28.0

MILK AND CREAM—BELOW STANDARD.

CREAM.

Lab. No.	Date.	Obtained From.	Town.	Remarks.
2032	6-27-13	Dennis Lee	Chinook.....	Low in fat.

MILK.

1963	6-13-13	Mrs. W. P. Campbell...	Chinook....	Low in fat.
1968	6-13-13	Chas. Hanson	Havre.......	Low in fat.
1969	6-13-13	J. B. Martin.........	Havre......	Low in fat.
1970	6-13-13	Connor Bros..........	Havre......	Low in fat.
1971	6-13-13	Kong Faun	Havre.......	Low in fat and solids not fat.
1972	6-13-13	L. Newman...........	Havre......	Low in fat.
1973	6-13-13	Kong Coy.............	Havre......	Low in fat.
1974	6-13-13	Frank Nishigaki	Havre.......	Low in fat.
1975	6-13-13	Suzuke & Naminaneschi	Havre......	Low in fat.
1976	6-13-13	Charlie Sing...........	Havre.......	Low in fat.
1990	6-20-13	Vic Burney............	Deer Lodge.	Low in fat and solids not fat.
1991	6-20-13	Hotel Deer Lodge.....	Deer Lodge.	Low in fat.
1992	6-20-13	InterstateNews Lunch Counter	Deer Lodge.	Low in fat.
2034	6-27-13	H. G. Cameron......	Missoula....	Low in fat and solids not fat.
2042	6-27-13	Tip Top Lunch.......	Missoula....	Low in fat.
2043	6-27-13	Delmonico Restaurant.	Missoula....	Low in fat.
2044	6-27-13	Sam's Restaurant.....	Missoula....	Low in fat and solids not fat.
2047	6-27-13	Coffee Parlor..........	Missoula....	Low in fat.
2051	6-27-13	I. Amonio.............	Victor......	Low in fat.
2055	6-28-13	John Kaltner..........	Hamilton...	Low in fat and solids not fat.
1993	6-20-13	Eagle Cafe............	Deer Lodge.	Contains formaldehyde.

MISCELLANEOUS.

Lab. No.	Date.	Description.	Remarks.
1728	6-20-13	Vanilla Extract. Dealer—Olcott & Tolman, Red Lodge. On label: Full Strength Flavoring Extract, Vanilla, 4 ozs., Full Measure, For Flavoring Cakes, Etc. E. B. Miller & Co., Chicago.	Complies with standard.
1731	6-20-13	Extract of Vanilla. Dealer: Olcott & Tolman, Red Lodge. On label: Young Giant Brand Extract of Vanilla, 4 ozs. net weight. Put up by Gowan, Peyton-Tuohy Co., Duluth, Minn. 40% Alcohol; Guaranteed Under Food and Drug Act.	Misbranded. Contains less than 40 per cent alcohol.
1732	6-20-13	Vanilla Flavoring Extract. Dealer: Olcott & Tolman, Red Lodge. On label: Vanilla Flavoring Extract; Schilling's Best, 4 ozs.; 43% alcohol.	Misbranded. Contains less than 43 per cent alcohol.
1750	6-20-13	Imitation Lithia Water. Dealer: Eureka Bottling Works, Billings. On label: Corona Springs, Imitation Lithia Bottled by Eureka Bottling Works, Billings, Montana.	Misbranded. Contains no determinable amount of lithium.
1980	6-19-13	Early June Peas. Dealer: John Mikesell, Bear Creek. On label: Forest City, Allen Bros. Co., distributors, Omaha, Nebraska. Average net weight 1 lb. 3 ozs.	Complies with the standard.
1981	6-19-13	Kidney Beans. Dealer: John Mikesell, Bear Creek. On label: Rust Park Kidney Beans, Packed for Rust-Parker, Martin, Duluth, Minn. Contents: 18 ozs., or over.	Complies with the standard.
1982	6-19-13	Early June Peas. Dealer: John Mikesell, Bear Creek. On label: Wampum Brand. Packed for Stone-Ordean-Wells Co., Duluth, Minn.	Complies with the standard.
1983	6-19-13	Mushrooms. Dealer: John Mikesell, Bear Creek. On label: Extra Small Mushrooms. Bleached with Sulphur; A B C Brand. Conserve alimentaires. 7 ozs. ¾ Bordeaux, France.	Complies with the standard.
1984	6-19-13	Moyen French Peas. Dealer: John Mikesell, Bear Creek. On label: Bacot Brand, Bordeaux, France. Moyen French Peas, Colored with Sulphate of Copper. Packed for Allen Bros. Co., Omaha, Neb.	Adulterated. Contains copper.
1985	6-19-13	Spinach. Dealer: John Mikesell, Bear Creek. On label: Forest City. Packed for Allen Bros. Co., Omaha, Neb. Guaranteed to Comply with All National and State Pure Food Laws.	Complies with the standard.

WATER ANALYSES—PARTS PER MILLION.

Laboratory Number.	Date.	Descrition.	Free Ammonia.	Albumenoid Ammonia.	Nitrogen As		Oxygen Consumed.	Chlorine.	B. Coli.
					Nitrites.	Nitrates.			
1933	6–4–13	Untreated water, Little Chicago water Supply	...	...	...	...	...	...	8 probable B. Coli per Cc.
1934	6–4–13	Treated water, Little Chicago Water Supply	...	...	...	...	...	...	5 probable B. Coli per Cc.
1937	6–3–13	Livingston City Water Supply	None	.123	.0033	.60	3.20	2.55	
1977	6–11–13	Spring Water near Great Falls	.068	.123	None	.30	2.5	2.55	
1978	6–11–13	Missouri River opposite Spring (1977)	.048	.100	.0066	.40	4.5	2.04	
1987	6–19–13	Reservoir, Hunters Hot Springs Hotel	...	...	...	...	...	...	Many probable B. Coli per Cc.
2017	6–25–13	Spring near Great Falls	...	...	...				
2018	6–25–13	Yellowstone River Intake for Billings Water Supply	0.024	0.16	Trace	Trace	3.0	1.02	
2019	6–25–13	Pumps of Billings Water Supply	0.024	0.14	None	None	1.80	1.0	
2057	6–27–13	Well Water near Big Timber	...	...	...	...	...	...	None in 3 Cc.

THE GREENING OF VEGETABLES WITH COPPER SALTS.

Since the Montana Food and Drug Act follows the United States Food and Drug Act of June 30, 1906, and its amendments and decisions arising from the enforcement of the various provisions of that act; it may be in order to review these decisions in regard to the use of copper salts in the greening of vegetables.

Food Inspection Decision 76, signed by the Board of Food and Drug Inspection and approved by the three Secretaries, relative to the use of dyes, chemicals and preservatives in foods, dated June 18, 1907, has this to say concerning this practice:

"The question of the entry into the United States of vegetables greened with copper salts has not been finally determined. Pending the determination and decision of this matter by the Secretary of Agriculture, all vegetables greened with copper salts which do not contain an excessive amount of copper will be admitted to entry if the label bears a statement that sulphate of copper or other copper salts have been used."

In a memorandum to accompany this decision the Board of Food and Drug Inspection reviews the use of copper salts in vegetables, and among other things makes this statement:

"It is the opinion of the Board that copper sulphate is injurious and should be prohibited eventually, but it would work a great injury to American importers to put this ruling into effect at once. It is believed that the use of copper sulphate or other salts of copper in restricted quantities for greening vegetables should be permitted for the pack of the present year, but for no longer."

Under date of May 1, 1908, Food Inspection Decision 92, approved by the three Secretaries, stated that foods greened with copper salts would not be permitted entry to the United States after January 1, 1909.

By Food Inspection Decision 102, approved Dec. 23, 1908, by in three Secretaries, vegetables greened with copper salts but not containing an excessive amount of copper and otherwise suitable for food, were allowed entry to the United States until further notice.

On July 12, 1912, Food Inspection Decision 148, signed by the Board of Food and Drug Inspection, was approved by the Secretary of Agriculture. The text of that decision follows:

Use of Copper Salts in the Greening of Foods.

The question of the use of copper salts in the greening of foods was referred by the Secretary of Agriculture, on March 11, 1909, to the Referee Board of Consulting Scientific Experts. Exhaustive investigations have been conducted by that board and the Department of Agriculture has received the report of the investigations. The questions which were referred to the Referee Board are as follows:

"Are vegetables greened with copper salts adulterated under th Food and Drugs Act of Jun 30, 1906, because,

(a) A substance has been mixed or packed with them so as to reduce or lower or injuriously affect their quality or strength;

(b) They have been mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed;

(c) They contain any added poisonous or other added deleterious ingredient which may render such articles injurious to health?

(1) In large quantities?
(2) In small quantities?

The main general conclusions reached by the Referee Board from a study of their experimental results and other considerations are as follows:

"(a) Copper salts used in the coloring of vegetables as in commercial practice can not be said to reduce or lower or injuriously affect the quality or strength of such vegetables as far as the food value is concerned.

"(b) Copper salts used in the greening of vegetables may have the effect of conçealing inferiority inasmuch as the bright green color imparted to the vegetables simulates a state of freshness they may have not possessed before treatment.

"(c) In attempting to define a large daily quantity of copper regard must be had to the maximum amount of greened vegetables which might be consumed daily. A daily dose of 100 grams of coppered peas or beans, which are the most highly colored vegetables in the market, would not ordinarily contain more than 100 to 150 milligrams of copper. Such a bulk of greened vegetables is so large, however, that it would hardly be chosen as a part of a diet for many days in succession. Any amount of copper above 150 milligrams daily may, therefore, be considered excessive in practice. A small quantity is that amount which in the ordinary use of vegetables may be consumed over longer periods. From this point of view 10 to 12 milligrams of copper may be regarded as the upper limit of a small quantity.

"It appears from our investigations that, in certain directions, even such small quantities of copper may have a deleterious action and must be considered injurious to health."

The Food and Drugs Act of June 30, 1906, provides that a food is adulterated, "if it contain any added poisonous or other added deleterious ingredient which may render such articles injurious to health." The act also provides that a food is adulterated if it be * * * * colored * * * * in a manner whereby damage or inferiority is concealed." It is apparent from the findings of the Referee Board that all foods greened with copper salts are positively adulterated under the first above-quoted provision of the law, and that in certain cases foods may be adulterated under the second above-quoted provision.

The Secretary of Agriculture, therefore, will regard as adulterated under the Food and Drugs Act foods greened with copper salts which, on and after January 1, 1913, are offered for entry into the United States, or manufactured or are offered for sale in the District of Columbia or the territories, or are shipped in interstate commerce.

All previous food inspection decisions on the subject of greening foods with copper salts are amended accordingly.

A complete report of the investigations and conclusions of the Referee Board on this subject will be published by the Department of Agriculture.

Paragraph 4 of this decision was modified on December 26, 1912, by Food Inspections Decision 149, signed by the Secretary of Agriculture, so that the time for it to take effect was postponed to May 1, 1913.

The ruling brought forth in Decision 148, being now in effect under the National Pure Food Act, is also in effect within the State of Montana, under the Montana Food and Drug Act

THE TERM "COLORED" FURTHER DEFINED.

In Notice of Judgment No. 2384 of the United States Department of Agriculture, given pursuant to Section 4 of the Food and Drug Act, there is given the opinion of Judge Landis, sitting in the Federal Court for the Northern District of Illinois, relative to the term "coloring" as used in the United States Food and Drug Act. The decision is applied to the forced curing of oranges, but it is of special interest as its fundamental propositions are of general application. The evidence showed that the oranges in this case were picked from the tree when the rind was still green and subjected to a heat of 94 to 96 degrees in an ultra-humid atmosphere, the chief effect of the process being to turn the rind yellow. There seemed to be some other changes within the orange, yet as a whole the fruit, while edible, did not become as ripened as the color of the rind would indicate to the lay consumer. Portions of Judge Landis' decision most pertinent to the coloring thus produced are quoted below:

"Now, in this Pure Food Law there are two things that it is sought to prevent: the misbranding of an article, the adulteration of an article, for consumption, the general purpose of the act being to give to . . . . as I take it, to give to what is called the consumer in our economic discussion, the chance to know what he eats, what he buys and eats. . . . That is the general purpose of this law, and . . . . the judges have had that in mind as the object and purpose of this law, as distinguished from the giving to persons of expert knowledge information as to the quality or condition of a food or drug product. . . . .

"And in order to accomplish that, and as one step toward that end, ... the act has a definition of the word 'adulteration.' . . . . Now, while it is true that the common acceptance of the term 'adulteration' implies the admixture of something inferior with the article, the putting in of a foreign substance into the article, this statute goes farther than that, and it is not content with the ordinary acceptation or the dictionary acceptation of the word 'adulteration.' . . . . Coming down now to Clause 4: For the purposes of this act, an article shall be deemed adulterated, in the case of food, if it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed. It is not a case of staining. We have a right to look for the dictionary definition of the terms used, here, to determine what Congress had in mind, because Congress must have had in mind, when it used these words, the dictionary definitions. And the dictionary definitions . . . . show that the oranges are not stained. Nor are they powdered. Nor are they coated. They are not mixed. . . . . And the definition of colored, dealing now with the legal propositions, not the merits of the case whether these oranges are inferior or not, one of the clauses of the definition of coloring fits this case. . . . .

"The transitive verb 'color' is defined by the Century Dictionary, 1911 edition, as follows: 'To give or apply color to; to change or alter the color or hue of.'

"Now, as I say, Congress had in mind these definitions—the same definition is in the edition of 1900—when Congress used the word 'colored' they had in mind that they were using the word 'stained,' and that in using the word 'stained' they were using a term which dealt with the use of something that was put upon the thing, as the definition here shows. And so with 'coated.' The word 'colored' is the only one of these words that lets in the proposition of changing the hue or color, changing the color or hue of an article without adding something to it, or coating it over, or submerging it in a liquid or some other article. This definition of color, to my mind, clearly justifies and clearly covers the case where the color, the appearance of an article as to hue, is changed by a process other than a natural evolution, without the addition of extraneous substances, chemicals, or other matter; so that, if an article is subjected to a process, a heat process, by reason of such subjection undergoes a change, whether that change under such influence is a chemical change in the thing itself, caused or brought about, a reaction of some kind brought about by the application of heat, whatever it is, it is in my judgment this statute fits it.

"Passing the question for the present, of whether or not these oranges are good or bad, whether somebody is deceived or nobody is deceived, having in mind for the present solely the question of the meaning of the word, what Congress had in mind when it selected the word . . . . having in mind the purpose and object that Congress had in mind was to forbid the doing of the thing that would deceive the person who got the thing at the store, ... can there be any doubt that what they had in mind and what they meant to express was that, beyond coating, or staining, or powdering, or mixing in some other way the thing was colored with the effect and purpose, or with the effect without the purpose, of deception as to its true condition, that the statute should have that meaning. I think it is quite clear that this is what they must have had in mind. To adopt the illustration used in the argument, if instead of this thing being accomplished by the heating process, it had been accomplished by the use of some sort of paint or extract of carrot, or something of that sort, and it was used and the result of its use was to give to the orange this color, and in fact it was a perfectly unfit article of food, it would be plain that that would be a violation of the law. . . . . How, then, can it be said, if the subjection of the thing to an artificial process . . . . a color is given to the thing which belies the contents of the thing and thereby misleads and deceives the person, to prevent whose deception the law was passed, how can it be said, on what theory can it be urged, that, merely because there has been no outside matter added to it, the law does apply to it? . . . . I think the law applies to that case. The dictionary definition as I read it, requires the holding that it does apply to that case."

The court thus having decided that the fruits were colored within the meaning of the law, and that a certain degree of inferiority was thus concealed from the lay consumer, the case was decided in favor of the Government.

The decision is of interest in that it holds that it is not necessary to actually add to a food or drug some foreign substance to color it, but that it may be "artificially colored" by subjecting it to an artificially produced condition. Also it holds that in case of a question of deception the lay consumer is to be considered as the person who is apt to be deceived and not someone who is unusually familiar with the particular article, as it appears under various conditions in commerce.

These propositions, while laid down by a Federal Judge, pursuant to the National Food Law, also apply in Montana under the Montana Food and Drug Act.

98995

MONTANA STATE BOARD OF HEALTH.

Directions for Taking Samples of Milk and Cream.

Some difficulty having been experienced in collecting samples of milk and cream in a uniform manner, the following instructions for taking such samples will be put in the hands of the inspectors.

Representative Samples.

A pint sample representative of the product as delivered to the consumer is secured. In case the product is sold in quart bottles only, a pint is obtained from a quart bottle, a representative portion being secured by pouring from the quart bottle into the pint container and back about ten times. A representative pint is thus secured.

To Prevent Souring and Churning.

To prevent souring of the sample between the time of purchasing by the inspector and arrival at the laboratory, it is necessary to preserve the sample with bichloride of mercury. The tablets furnished for this purpose do not always dissolve quickly and even after solution do not mix readily with the sample. In order to keep the sample it is necessary that the preservative be well mixed throughout the sample. Therefore, after the tablet has gone into solution the sample should be well mixed by turning the jar over and back several times. The sample should also be kept in as cool a place as possible and out of the sun until shipped. To prevent churning due to jar in transportation it is necessary that the sample container be completely filled so that there is no air space under the lid.

To Establish Legality.

To establish the legality of the sample for court purposes, it is necessary that the sample be sealed with a Board of Health seal provided for that purpose. This seal should be pasted on the top of the jar so that in order to open the jar the seal would have to be broken. The seal should be signed and dated in the spaces provided therefor, either with ink or indelible pencil. To establish a record of the sample it is also necessary to fill out with ink or indelible pencil the inspector's card in complete form, having the person who actually sold the sample sign the card in the space provided for the salesman's signature. The blank spaces on the card should all be filled out where there is information for the same. The dealer is the person conducting the business from which the sample is secured; the manufacturer, the person from whom the sample originated. The space for the Lab. No. should be left vacant, as a laboratory number is assigned to each sample as it arrives at the laboratory. If the dairy has a special name, the goods are considered as of that brand. Any remarks concerning any peculiarity of the sample or any circumstances of special note relative to the sample or to the dealer may be inserted in the space provided therefor, or on the back of the card if more space is necessary.

Check Sample for Dealer.

In case the dealer wishes to retain a sample of the goods for analysis as a check, the inspector will take a second sample in the same manner as the one sent the laboratory and seal it with a Board of Health seal of the same number, signing and dating the same.